TPL VISION
Active LED solutions

ESSENTIAL EBAR+ EXPERT
USER'S GUIDE

PREAMBLE

This notice includes all the advice and warnings that enables a correct set up and a safe use of the product. TPL Vision can not be responsible for the bad use of the notice. If so, TPL Vision cancels the guarantee's effects.

IP65

+40°C
-10°C

DO NOT CONNECT TO 24VDC.
YOU NEED A CONTROL CURRENT DRIVE !

UNPACKING

Products are packed in our factory, using suitable materials for a safe transport through the usual means of transportation, in France and abroad. However, a damaged package must be reported to the carrier on delivery. Hand-written reservations must be indicated on the delivery order. Moreover, please send a letter or an email to TPL Vision as soon as possible (up to 24 hours after the delivery). If the transportation damage has not been stipulated on the delivery order and reported to TPL Vision in time, the package will not be taken back nor exchanged. To open the package, do not use any cutting blade so as to avoid damages on the product. Please use the delivered accessories, if needed (do not use any other products or equivalents to replace the delivered accessories).

RISK CLASS

The EN-62471 norm about lighting fluxes enables the classification of led lightings in 4 distinct groups, according to their hazardousness degree. Please find below an indicative table, recapitulating the classes of risk for our standard products.

Colour	Class	Risk
White WHI, Green 525 nm, Red 630 nm	0	none
UV 405 nm, Blue 470 nm, IR 850 nm	1	low
UV 365 nm	2	moderate
UV 385 nm	3	high

In all cases, TPL Vision recommends the use of **the protection glasses** that are listed in its catalog.

For more information about photo-biological risks, do not hesitate to contact us.

TPL Vision can provide calculation notes about **the nominal distance of eye risks** (security distance).

BEWARE to the infrared light, invisible to the eyes.
To know if the light is on, please refer to the LED indicators.

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DIMENSIONS

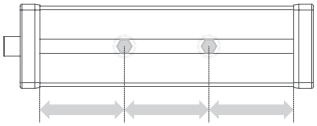
	Length* (mm)	Heigth (mm)	Width (mm)
	A	B	C
EBAR+	Useful surface + 33	45	47,6

LENGTH EXAMPLES

EBAR+ 125 ➞ 125 mm + 33 mm = 158 mm
EBAR+ 250 ➞ 250 mm + 33 mm = 283 mm
...
up to : EBAR+ 3125 ➞ 3125 mm + 33 mm = 3158 mm

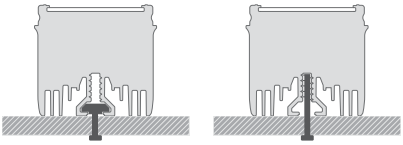
* Total length, without connector.

FIXING



SET AT EQUAL DISTANCE

- Length (Lg) < 600 mm : 2 nuts M4
- 600 mm < Lg < 1250 mm : 3 nuts M4
- 1250 mm < Lg < 2500 mm : 4 nuts M4
- 2500 mm < Lg < 3125 mm : 5 nuts M4



Nuts M4 – supplied

Screws M4 – not supplied

During the set up, the light has to be switched off and unplugged. Please use the delivered nuts and insert them in the groove located in the back of the light. The light will be better fixed if you spread the attachment points as indicated on the scheme above. You can also use M4 screws (not supplied) with a tightening torque from 0.5 to 1.5 Nm. We also recommend the use of a threadlocker (not supplied) to avoid any risk of loosening.

LED INDICATORS

ON : LED indicator **LED ON**

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WIRING

Power connector : 12A max per contact.

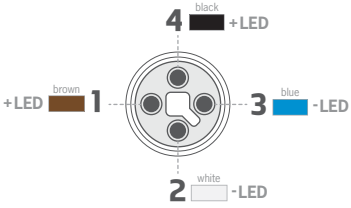
Front view

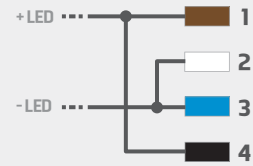
Top view

Adapted cables : cable M12 female 4 points high power **T-coding*** (ref. C-M12-4P-T-2M).
BEWARE: new type of cable for more power, not compliant with the standard M12 wires 4 points.

CONNECTION

M12 Connector 4 male points - T Coding





Connect the brown and the black wires together
and the white and the blue wires together.

VOLTAGE DROP

Dimensions	125	250	375	500	625	750	875	1000	1125	1250
Max voltage drop in the bar (V) under max current	0.01	0.04	0.09	0.17	0.26	0.38	0.51	0.67	0.84	0.92
Power supply cable : 4x1,5² max length for acceptable voltage drop (m)*	52	25	16	12	9	7	5	4	3	2

* For longer power supply cable, increase the section of the copper wire.

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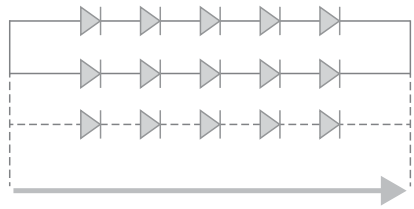
LED CONNECTION IN THE PRODUCT

The LED are connected in series (branch of 5 LED).
All branches of 5 LED are then connected in parallel.



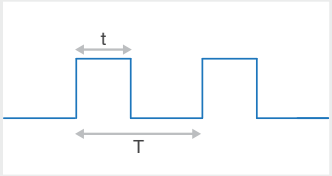
Branch length: 125 mm = 5 leds

LED FEATURES

Voltage at the LED terminals according to current and colours :

	Red	Infrared	Blue & White	Green
Current «I» /LED	**Voltage «Vf» (+/-20%)/LED**	**Voltage «Vf» (+/-20%)/LED**	**Voltage «Vf» (+/-20%)/LED**	**Voltage «Vf» (+/-20%)/LED**
Up to 350 mA	2.15	1.46	3.2	3.32
500 mA	2.3	1.5	3.32	3.44
700 mA	2.5	1.56	3.45	3.57
1050 mA	2.75	1.68	3.6	3.71
1500 mA	3.15	1.73	3.85	3.95
2000 mA	3.42	1.9	4.15	4.12
2500 mA	3.73		4.45	4.3

Current «I» /LED	Duty cycle «D» max (%)	Pulse time «t» max
Up to 350 mA	100	infinite
500 mA	100	infinite
700 mA	50	1s
1050 mA	30	50ms
1500 mA	10	10ms
2000 mA	5	1ms
2500 mA	1	100µs



$$D \text{ (duty cycle)} = \frac{t \text{ (time)}}{T \text{ (period)}}$$

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Related luminous flux compared to luminous flux under 350 mA (I) :

Current «I» /LED	Red	Infrared	Blue & White	Green
350 mA	100%	100%	100%	100%
500 mA	145%	145%	145%	145%
700 mA	160%	200%	185%	160%
1050 mA	185%	300%	220%	185%
1500 mA	230%	430%	285%	230%
2000 mA	270%	570%	330%	270%
2500 mA	300%		370%	300%

Max acceptable current:

- Up to 1125mm: 2.5A/125mm except for IR: 2A/125mm.
- Above 1125mm: 24A max.

Max acceptable current in continuous mode: 500mA/LED.
BEWARE: the product is not protected.

Min current: 100mA.
LED rising time: 400 nanoseconds (0.4µs).
Voltage to keep at the product input (entry of the cable): Vf x 5 + 2.5VDC.

EXAMPLE OF CURRENT CONTROL DIMENSIONING

Product dimension: 1500mm – red light.
LED number: 60 LED → 12 branches of 5 LED.
Max admissible current:

Above 1125mm = 24A max
1 cable = 25A max
→ 24A max → 24 ÷ 12 = **2A/branch**.

We choose the lowest value. Here: 24A.
We can then calculate the number of Ampere per branch, to get the minimum operating voltage.

Minimum operating voltage: the table gives 3.42 V/LED for 2A → 3,42V x 5 + 2,5V = **19,6V**

OPERATING CONDITIONS

-10° to +40°C / 80% of humidity without condensation.
No thermal shock (max temperature variation: 10°C in 24h).

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USER SECURITY

Do respect the power supply voltages and the connection terminals.
Do not modify or dismantle all or part of the product.
Do not connect or clean when power is on.
Do not watch the lighting source directly, and follow the advice below :

- If the workstation enables it, interpose a filter that will stop the lighting radiation under fixed or adjustable frame between the source and the operator.
- When these measures cannot be implemented, supply the operators with glasses (class 4) available for sale at TPL Vision, or with a dedicated protective mask, that will stop the lighting radiation.
- Forbid or limit the direct access to the lighting source (exposure into the radiation axis).
- Establish a security perimeter so as to prevent the operators from approaching the lighting source beyond the recommendations of the manufacturer, as for eye irritation is concerned.
- In any case, ensure that the chosen means properly reduce the exposition quantities (features of screens or glasses to be chosen, according to the wavelengths that the operators are exposed to).

EQUIPMENT MAINTENANCE

CLEANING (when the product is switched off)

Please use a soft and dry cloth.
Do not use any abrasive material.
Do not use any cleaning solvent or aggressive chemical product – isopropyl alcohol.

Version A-1, 2015/03 edition.

Features and presentations liable to changes without notice.

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